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ABSTRACT

A striking feature of education during the last decade has been the high rate of finance and enrollment expansion that has gone hand in hand with economic growth and social development. Social demand for education has consistently run ahead of the resource provision in many countries, with the resulting paradox that education has been both the most rapidly growing sector of expenditure and the scene of much social discontent and frustration. In coming years, the accent on policies may shift to qualitative policies and planning, thus raising the question of education as a part of a social change process. Policies for educational research and development, educational innovation, and educational planning need to be discussed within this context and reoriented in light of this central concept. This report aims at consolidating the existing state of practical knowledge in this area for the benefit of those countries and individuals who find themselves faced with the need to take action. (Author)

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Centre for Educational Research and Innovation

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THE MANAGEMENT OF INNOVATION IN EDUCATION

report on a workshop held at St John's College, Cambridge
June 29th to July 5th, 1969

EA 003 873

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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The Centre for Educational Research and Innovation was established in June 1968 for an initial period of three years, with the help of a grant from the Ford Foundation which was later supplemented by a grant from the Shell Group of Companies.

The main objectives of the Centre are as follows:

- *To promote and support the development of research activities in education and undertake such research activities where appropriate;*
- *To promote and support pilot experiments with a view to introducing and testing innovations in educational systems;*
- *To promote the development of co-operation between Member countries in the field of educational research and innovation.*

The Centre functions as part of the structure of the Organisation for Economic Co-operation and Development, under the responsibility of the Council of the Organisation and the Secretary-General. It is supervised by a Governing Board of independent personalities appointed by the Secretary-General, in their individual capacities.

EDUCATION

The Organisation for Economic Co-operation and Development (OECD), was set up under a Convention signed in Paris on 14th December, 1960, which provides that the OECD shall promote policies designed :

- *— to achieve the highest sustainable economic growth and employment and a rising standard of living in Member countries, while maintaining financial stability, and thus to contribute to the development of the world economy ;*
- *— to contribute to sound economic expansion in Member as well as non-member countries in the process of economic development ;*
- *— to contribute to the expansion of world trade on a multilateral, non-discriminatory basis in accordance with international obligations.*

The Members of OECD are Austria, Belgium, Canada, Denmark, Finland, France, the Federal Republic of Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

PREFACE

A striking feature of education during the last decade or so has been the very high rate of expansion of finance and enrolments that has gone hand-in-hand with economic growth and social development. Despite this high rate of growth, social demand for education has consistently run ahead of the provision of resources in many countries, with the resulting paradox that education has been both the most rapidly growing sector of expenditure and the scene of much social discontent and frustration.

One of the reasons for this may be that a quantitative explosion has gone hand-in-hand with qualitative stagnation. This is to some extent due to the difficulty of defining educational goals in terms which are meaningful for action. In coming years the accent in policies is likely to shift to *qualitative* policies and planning, and this raises the whole question of *education as part of a process of social change.* Policies for educational research and development, educational innovation and to some extent educational planning need all to be discussed in this context, and re-oriented in the light of this central concept.

A central part of this task in the OECD countries is to establish effective mechanisms for educational innovation. The process of educational innovation is as yet only imperfectly undersood, and policies in this area are only now being established. On the other hand, the problems are so urgent that many OECD countries are beginning to establish bodies to develop and introduce educational innovations. The aim of the following report by the Centre for Educational Research and Innovation is to bring together the existing state of practical knowledge in this area – for the benefit of those countries and individuals who find themselves faced with the need to take action.

In the long run, education will need a wide range of policies and instruments for sustaining a high rate of change and innovation, just as these have proved to be necessary in industry. We are only at the beginning of policies which will make partners of all those, whether teachers, parents or children, who are engaged in the process of educational innovation.

As a first practical step, the Governing Board of CERI is proposing to OECD Member countries that all OECD countries should draw up an Educational Development Programme and establish an Educational Innovation Agency to co-ordinate and promote the development and experimental work necessary for its implementation.

This Report has been prepared on the basis of the materials and conclusions of the OECD Workshop on the Management of Innovation in Education, held at St. John's College, Cambridge, England from 29th June to 5th July 1969. The participants in the Workshop and the authors of relevant papers are listed in the Appendices. The text now published is a collective effort by three people: P. Dalin, Deputy Head of the Norwegian Council for Innovation in Education at the time of writing the report, and now a staff member of CERI; J. Scotland, Principal of the Aberdeen College of Education, United Kingdom; and D. Thomas, also a staff member of CERI.

J.R. Gass
Director
Centre for Educational Research
and Innovation

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WORKSHOP ON THE MANAGEMENT OF INNOVATION

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* An edition of the working papers is available on request. (The longer country studies: U.S.A. (69.15), Norway (69.10) and Sweden (69.14), are not included. They will be published separately).

INTRODUCTION

For one week during the Summer of 1969 fifty educationists from eleven OECD Member countries met at St. John's College, Cambridge, to discuss the problems associated with the management of innovation in education.

The participants represented a cross-section of the education community – government planners, researchers, administrators, headmasters, teachers, directors of curriculum projects, etc. – all having been chosen because they had been directly involved in the management of various innovations at secondary level within the educational system, within schools in curriculum experiments, within government departments in structural reform and so on.

PREPARATION AND SPONSORSHIP

Educationists, politicians and others had brought to the attention of the CERI the concern they felt at the way that educational innovations were being introduced in tneir countries. They were often ill-prepared, with no clear definition of aims and objectives, with little appreciation of possible side-effects and with almost no desire to attempt a systematic appraisal of the progress of each innovation. These criticisms were levelled at all kinds of innovations whether of a structural nature, e.g. the change to comprehensive education or the reform in the teaching of one single subject in the curriculum.

Four countries: Holland, Norway, Sweden and the United Kingdom, decided to co-operate with the CERI and become the official sponsors of what later was to be called A Workshop on the Management of Innovation in Education. Each of the sponsoring countries nominated one official to become a member of the Steering Group, which with two members of the CERI Secretariat, met three times before the Workshop in order to prepare its content.

Chapter I

SOME DEFINITIONS

WHY A WORKSHOP?

It was felt by the members of the Steering Group that although there was a great deal of experience in the management of specific innovations within countries, little of this information was catalogued in a systematic fashion and little was being disseminated on an international front, so that projects were being duplicated and by definition mistakes too. It was decided, therefore, to bring together those people who had been concerned with various kinds of innovation and ask them to work together to try and produce some guiding principles for those who were concerned with educational innovation.

In order to help the participants with their task a number of papers* were commissioned which dealt with various aspects of innovation, e.g.:

a) Theories of innovations;
b) Large scale innovations, e.g. comprehensive education;
c) Smaller scale innovations, e.g. a curriculum project;
d) Roles of innovators or innovative minded individuals;
e) Resistance to innovation.

The papers were intended as background material, to be used as and when the participants thought appropriate and were not intended to form the basis of any of the discussions.

Further, the Steering Group worked out a general paradigm which described some of the stages in the process of innovation:

1. Planning/utilization/creation;
2. Construction/design/production;
3. Trial/experiment;
4. Evaluation/revision;
5. Dissemination/diffusion.

* A full list of papers can be found in Appendix I.

This paradigm was meant simply as a guide for the discussions on the first two days. (Chapter III discusses this paradigm in greater detail).

THE WORKSHOP ITSELF

The Workshop was loosely structured and the participants were divided into six groups. The groups were led by a so-called Group Manager whose job it was to report the discussions to the Conference Steering Group, which met once a day. The Group Manager did not have the role of steering the discussions in any way. This was left to each group to decide how it wished to organise itself.

On the second day of the Workshop discussions were held concerning the course the Workshop should take during the remaining days of the week. It was decided to concentrate on six specific themes and participants were free to join that group where they felt that a theme was of most interest to them.

The themes were the following:

1. Educational organisations and innovation – with regard to the need for flexibility within the organisations and with regard to the principles for agencies which carry out innovations in the educational system.
2. To discuss the differences in innovation processes and strategies that must exist in dealing with innovations which are directed towards changing aims and changing means. How can we best define the concepts of aims, objectives and criteria in relation to this problem?
3. To discuss the management of the process of decision-making, planning and implementation of change in the organisation of a school system. An attempt will be made to formulate and answer key questions such as why change? What change? Who plans and how? How does one implement and with what result?
4. Long-range planning. How to define, collect and prepare for decisions on the basis of relevant data, e.g.:
   a) on how the present educational system performs in relation to its objectives;
   b) on existing social needs;
   c) on alternatives for future educational objectives and educational systems; and,
   d) on present knowledge and possible future developments as to instructional techniques, organisation, etc. (including possible changes in teacher roles).
5. The maintenance and support of existing innovations:
   a) The role of staff supporting the teacher (e.g. advisers and inspectors);
   b) Creating favourable attitudes in heads of schools;

c) Diagnosing causes of failure in attempted innovations;
d) Review mechanisms and "rolling reform".

6. The problems of dissemination:
   a) written material (different channels);
   b) educational products (new teaching aids, etc.);
   c) teacher-training (in-service training);
   d) information to other persons (principal or heads, members of school boards, etc.).

THE PURPOSE OF THE REPORT

We will attempt in this report, by referring to the papers prepared for the Workshop and to the results of the discussions that took place during it, to enunciate certain principles by which those concerned with the management of innovation may be guided in their efforts.

The report is then directed at the managers of innovation and by this we mean those who have the task of directing the innovation and making it operational.

Chapter IV, for example, is devoted to a discussion of specific innovations to which these managers might refer, e.g.:

a) The leaders of a curriculum development project would look for their guide-lines in the discussion on the IMU project (69.09)* and in the papers of Stenhouse (69.03) and Banks (69.04).
b) Government planners would refer to the examples of Sweden and Norway found in papers by Maclure (69.14) and Dalin (69.10).
c) Local or regional administrators will find the changes in Rotterdam of interest (69.20).
d) Those concerned with dissemination in the work of Havelock (69.17) and Sussman (69.15).
e) The researchers will find the work of Björklund (69.13), van Gelder/van den Berg (69.08) and Matthijssen (69.18) particularly relevant.

WHAT IS INNOVATION?

The term "innovation" has become a complex one taking on a variety of meanings in a variety of situations.

We understand innovation to mean those attempts at change in an educational system which are consciously and purposefully directed with the aim of improving the present system. Innovation is not necessarily something new but it is something better and can be demonstrated as such.

* The numbers in brackets are the numbers given to the Workshop papers which are listed in full in Appendix I.

Chapter II

WHAT INNOVATION ENTAILS

Part I. *THE PROCESS*

INNOVATION – SOME DEFINITIONS

Innovation is a social phenomenon highly typical of most western countries at the present time. It is difficult to determine or analyse the real meaning of it. Sometimes it even seems to be a goal in itself.

Do we need to innovate? The answer is again difficult, but in a broad context it is probably yes because it is one way, perhaps one of the best ways, to react in our rapidly changing society.

In certain specific circumstances, the concept of innovation may be valuable as a goal in itself. For example, in a change-oriented society people feel that they are effective and leading significant lives when they are the instruments of change. A school with a high rate of innovation, regardless of its actual effectiveness in the improvement of learning, is likely to be one in which all those who plan the work and make the decisions feel that what they are doing is important. If those ideas coming from the teachers, students and administrators are implemented, then these people will know that they are contributing.

However, the need for systematic changes in education should be stressed for change in education as an objective in itself is difficult to perceive as education and society are inextricably interlinked. Human societies, just because they are societies of human beings, are always subject to change. These changes are the natural consequences of the continuous challenge between the ideals man cherishes and the reality he is living in. Since the challenges, which we as human beings experience in our society, are changing, our opinions and ideals will change in a continuous process and so will our attitude towards education. The changes in present western societies are so radical and have become so extended that we have been made aware of the gap existing between our ideals and opinions regarding that which education should achieve and that which it really achieves in practice. Only a system-

atically and scientifically well thought-out approach to the problems of educational change on a large scale can provide educational changes which truly respond to changes in society.

Again, if we refer to three phases in the history of educational innovations:

1. The individual activities of the pioneer;
2. Co-operation between the like-minded;
3. The present post-war movement for innovation in education, firstly as a pedagogic desirability, then becoming a social necessity compelling a systematic approach to educational change,

it is clear that there is a distinct need for more insight into the process of innovation in order to improve the management of it.

If it has to be scientific research that contributes to the management of innovation, which is based not only on loose experience but on data provided by empirical research, then the separate research projects in the innovation process should be organised in such a way that they can contribute to a further development of a theory about educational innovation.

The function of such theory development is clear. It is necessary in order to sharpen our insight into the problems of systematic change. The nature and extent of the changes needed in the various educational systems require that, due to the rise of a management of innovation, these changes are no longer left to casual initiatives of separate groups and persons. It is therefore necessary that a theory of educational change should bring together our knowledge of the manner in which the results of tested innovating activities can be disseminated in the wide circle of an educational system. This requires not only a sharper insight into the process of changes, but also research into the methods of transmission and into the results of transmission in education.

There is much agreement on the need for changes and improvements in the educational systems of most countries. In few countries are there built-in mechanisms for dealing with the relationship between education and society. The starting point of an innovation, therefore, is built upon only very vague feelings about the need for change. However, there are no organisations which can carry out the critical evaluation function for the general schools and higher education. Therefore, the necessary basis for change is often lacking.

This lack of adequate contact with outside organisations as a basis for change is also true of the school's relationship to other segments of society such as the home and places for leisure-time activities. The needs which these environments express to the school for knowledge, proficiencies and attitudes are often so diffuse that it is very difficult to use them as a basis for continuous revision of the curriculum.

The meaning of this, then, should be to establish research and information channels between the different groups involved so that

the most adequate information about the changing needs could influence the planning and creation of innovations.

THE ORGANISATION OF INNOVATIONS

There are many differences in the organisation of educational systems in Member countries. It is, therefore, difficult to find one theory of organising the innovation process that would fit all school systems.

THE ASPECT OF CENTRALIZATION AND DECENTRALIZATION

To some extent both systems can be innovative if the appropriate tactics are used. Countries with a centralized school administration need a carefully built-in set of organisations assisting innovation, such as the Council on Innovation in Norway, or appropriate research and development centres or committees. The centralized system has the advantage when it can get ideas and feedback, of being able to make decisions with a great deal of authority and being able to back them up with appropriate supporting finances and personnel. On the other hand, the decentralized system is also capable of being innovative, particularly when it can draw on sources of new ideas and be under the spur of competition with other school systems and other schools.

It might not be possible to transfer all innovative organisation or strategies to all nations. In fact, there seems to be a strong preference in particular countries for particular ways of approaching the problem. For example, the Scandinavians operating in terms of a fairly homogeneous culture with a population agreeing on the basic values, tend to depend very strongly on consensus or on careful planning. They tend to emphasize the organisation of innovation and the development of innovative organisations; the English, with greater diversity in values and less centralization, tend to place much greater stress on the selection and training of the appropriate people for innovative roles and are taking great care that the inter-personal relationships among the actors involved in innovation are such as to permit the innovation to go forward. The Americans in contrast to both seem to think neither in terms of organisations, nor in terms of the selection of people, but rather in terms of developing tested innovation packages and disseminating these through the free enterprise system and backing them up with the support of funds in order to get them adopted.

Underlying this discussion of centralization is the concern with the effects of an authoritarian society as a whole, and/or authoritarian structures within the school system. It is recognized that where the tradition tends to be authoritarian and the school system relatively conservative, this presents special problems in the introduction of innovation. In other words, it is not necessarily the degree of centralization or decentralization, but rather the degree of authoritarianism which might explain to some extent the openness of different systems to innovation.

ENTRY POINTS FOR INNOVATION IN THE EDUCATIONAL SYSTEM

There might still be some traditional and conservative systems that resist almost any type of innovation, presenting special problems for the innovators. In the international context two strategies might help to open up the system:

i) Use an international organisation (e.g. CERI) as a sponsoring agency. The agency should be responsible for analysing possible policies and strategies.

ii) CERI could invite a country to sponsor some kind of an educational innovative experiment, which once in a country, might become a wedge for new ideas.

In general there might be some order or stages for development of an innovative system. Thus, fairly conservative systems might be willing to have experimental schools since these could be seen as highly controlled, and likely, at least in the view of authority, to conform with the rest of the system.

Another point of entry into conservative systems might be the importation of a change agent such as a consultant or innovative specialist. This would be particularly useful for a small system or a single school. The idea has been tried out in industry and there they found it suitable to have a fairly reputable well-known senior person assigned to this duty. It is also important that the office carry no authority, that the person be outside the normal chain of authority, that he depend on persuasion rather than giving orders. He then assists the regularly constituted authorities of the school in making changes, giving them advice, teaching them the processes when they need them.

Another approach would be to look for weaknesses in the system and innovate at these points. This idea refers to the fact that any educational system will have areas which it feels are, in its estimation, rather weak. This evaluation implies a readiness for change and therefore constitutes an appropriate place to introduce innovations.

On the national level there might be another way to organise innovations, and that is through development centres or national boards for innovation in education. Examples of this type of institution are the "National Council for Innovation in Education" (Norway), the "Illinois School Problems Commission" (U.S.A.), aspects of the "National Board of Education" (Sweden) and the "Schools Council" (U.K.). The role of this type of institution would be to stimulate educational innovations:

1. by acting as a national clearing house for all innovations, plans and projects, undertaken anywhere in the country and in other countries;
2. by giving the Minister of Education advice with regard to allowing experiments to be made, and if necessary by proposing amendments to laws; and
3. by planning study and research assignments.

CHARACTERISTICS OF INNOVATIVE SYSTEMS

In relation to the cases presented in the Workshop, it seems to be relevant here to mention some points in relation to innovation. It is by no means an exhaustive list but shows some of the characteristics of innovative systems:

i) An innovative education system should be one in which there is two way communication between the planner and the actor. In other words there should be the shortest possible social distance between the two.

ii) All relevant groups should be geared into the innovation. Relevant groups being those who would be affected by the innovation. Geared in, meaning that they should have a chance to plan and control the process of the innovation. Such groups would include the administrators, staff specialists, teachers, students and often parents and other interested groups in the community.

iii) There should be a provision for information in-put into the school system from a variety of sources from R and D units, from teachers' associations, from the student groups, from publications, through attendance at conference, through service on committee, etc.

iv) Conflicts appearing within the school should be used as an indication that change or innovation is needed. Thus conflicts would be welcome. They should not be denied, covered over, nor should they be resolved by regulation.

v) Rewards should be provided for innovators. Teachers, students, or administrators, who thought up new ideas accepted by the school council and put them into practice, should be given rewards for this and facilities for doing it.

vi) Provision should be made for the continuous re-examination of goals at specific intervals. In some cases this could be a continuous or rolling reform, perhaps in the area of curriculum. Other areas of the school system such as the authority pattern, the promotion pattern, the relationship between the teachers and students, etc., should be reviewed and questioned at regular intervals.

vii) There should be a flexibility of roles within the system. The mark of the rigid bureaucracy is that people are trapped within rigidly defined roles, carefully prescribed duties and relationships and privileges. The mark of the innovative system was held to be one in which people played multiple roles, in which the roles themselves were flexible. Flexibility was thought to be achieved by giving the rank to the person rather than to the position so that the person who moved around the system would neither lose privilege nor salary. He might move from teaching to administration to research and back and would always carry with him the improvements he had made. It was also felt that the role system should make provision for removing administrators too long in office. On senior

level it seems necessary that some provision be made for honorific jobs to which the senior administrators can be removed.

viii) The system should be self-renewing. This is really implied in the idea of continuous re-examination and in the flexibility of the system itself.

ix) The system should contain experimental and free schools and programmes as well as research and development units.

Part II. *A MODEL*

A MODEL APPROACH FOR THE PROCESS OF INNOVATION IN EDUCATION

We do not have a theory of the innovation process in education. As we have seen we might identify some general steps and some general principles, but we do not wish to enunciate a more extensive theory about the process here.

From a more practical point of view it is of great value to have some sort of a working-model which may serve as a check list for innovators. This, of course, is built upon an underlying theory about the process. The model presented is probably inspired from a more systematic and logical point of view. The model takes for granted that it is possible to identify steps in the process, and that it is possible to plan the process.

If the innovation process is stressed as a purely creative process, from the initiation to the end, it is probably difficult to accept the systematic and logical approach. The latter does not necessarily exclude the creative element. However, the planned process should have as a central aim possibilities for creation throughout the whole process.

The model is based on a time-dimension (from planning to diffusion). Through the whole process there are other factors (context factors) which may play a part at each stage (see Fig. 1).

The management of the process, and the problems related to it, will be discussed in the next chapter. The following description is meant to qualify the stages.

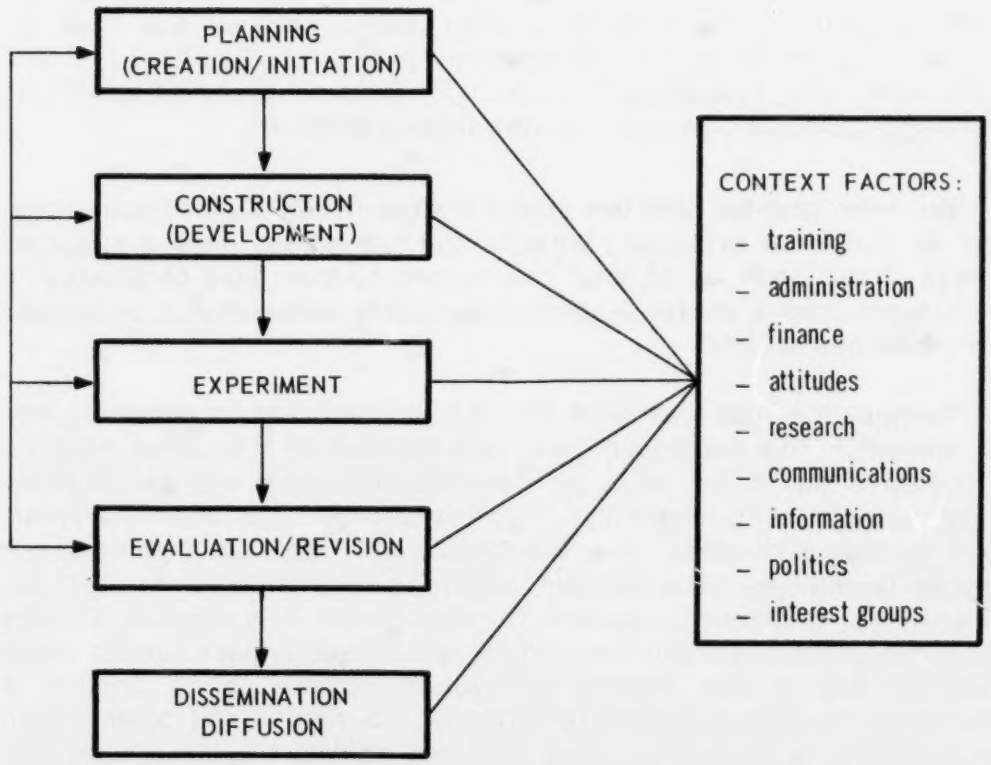
Planning includes aspects like gathering of relevant data, creation and initiation. Before the planning can begin there may in some countries have been a political decision.

The construction includes design and selection of material and development of all relevant ideas. The experimental setting may be formal or informal. The first trial is usually quite small.

The evaluation requires a systematic design. This is the basis for the necessary revision which will influence the next planning, construction, experiment and evaluation.

Figure 1

THE PROCESS OF INNOVATION IN EDUCATION



The last step, if the innovation is successfully developed, is the dissemination phase.

The context factors are dimensions that will influence the whole process. Training of personnel, for example, has to do with training of teachers, planners and research workers. It also means that changes have to come about in teaching training programmes.

The management of the process can be seen as the management of the interaction between the context factors and the five steps of the process.

Skinner and others have suggested that learning proceeds by the selective reinforcement of behaviours or dispositions which are already present in the learner. We propose that for certain purposes we might, in these terms, view the educational system as a learning organism.

The five-phased sequence running from planning to diffusion lends colour to this suggestion, since it closely parallels the sequence of learning stages proposed in the Skinnerean model. There is, firstly, the phase in which the immediate learning task is defined, the objectives set ("this is what you will be able to do"); secondly, the phase in which the definition is exemplified in concrete terms ("this is what it

means to be able to do it"); thirdly, the phase in which the learner attempts to perform the task ("now try to do it"); fourthly, the phase in which this performance is evaluated, and the evaluation is fed back to the learner ("this is how well you did it"); and finally, the phase in which the learning process is completed and becomes part of the learner's everyday repertory ("now you can do it"). Cast the educational system in the role of learner here, and we are back to: (1) Planning/initiation; (2) Construction/design/production; (3) Trial/experiment; (4) Evaluation/revision; (5) Dissemination/diffusion (or, as it might perhaps preferably be put, implementation).

But even granted that this model is superficially a permissible one, how far can it be exploited? What fruitful hypotheses does it suggest? Unless it can open up at least one or two further lines of enquiry, it is no more than a model in the uninteresting sense that a tin soldier is a model of a soldier.

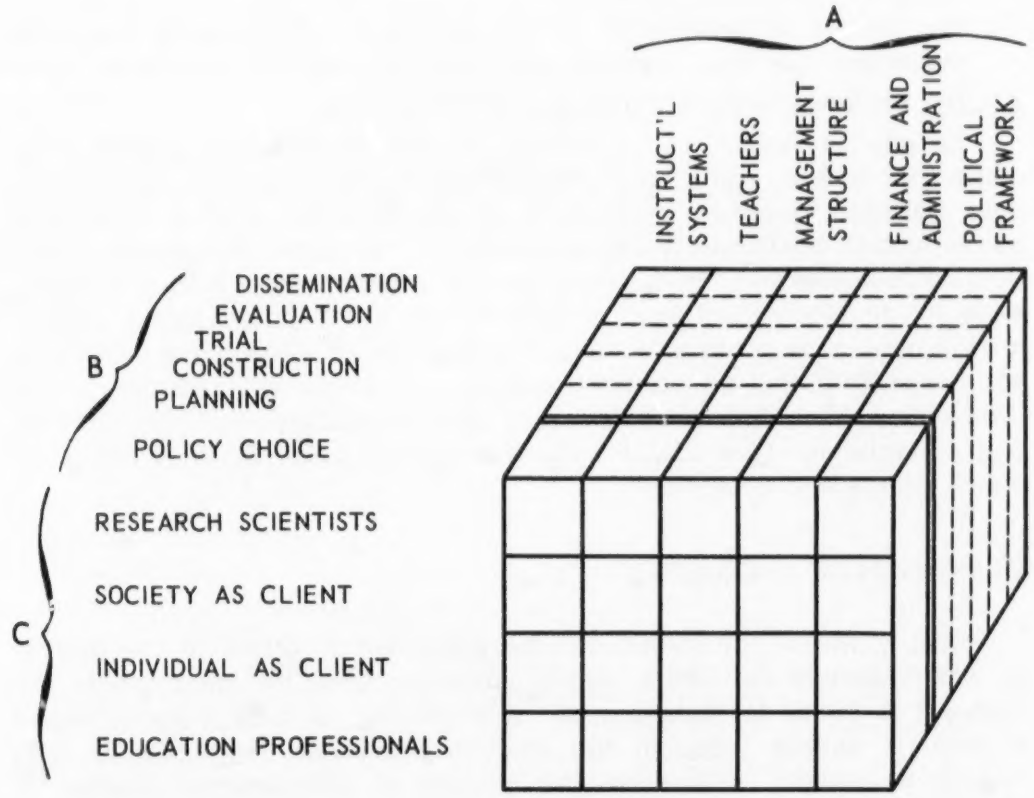
Perhaps the first and most obvious implication to be drawn is that the innovator, like the teacher, needs to be clear at the outset what he is trying to do. If his aims are obscure, the whole exercise is likely to be muddled and inefficient. Another and perhaps equally obvious point is that innovation, like learning, must begin at a point where desired tendencies have already begun to show themselves. Just as, for example, a child cannot learn to count before it is capable at least of distinguishing one from many, so an educational system cannot adapt itself to, say, a new method of teaching science unless there is at least some current dissatisfaction with the old method and some notion for replacing it. Innovation takes root and thrives by encouraging and reinforcing what is already inherent in the system: change cannot be effected from out of the blue.

Some further thoughts suggested by this parallel between innovation and the learning process concern active involvement, motivation, and the need to cater for individual differences. For innovation to succeed, it must directly involve the system which it is trying to change: merely to set up a demonstration model and to hope it will be generally imitated is to court much of the same disappointment as a teacher who merely portrays a technique without giving his students any opportunity to learn by doing. Practical engagement in the process of innovation is quite a different thing from the theoretical acceptance of it. But even this theoretical acceptance cannot be taken for granted – the need to arouse motivation is equally important. An educational system cannot reasonably be expected to undertake change simply for change's sake: there must be some intrinsic or extrinsic value manifested at the outset of the innovation process. Again, educational systems are no more identical one with another than are learners: an innovational strategy which succeeds with one system may need to be modified if it is to succeed with another, so as to take account of the relevant differences between them.

Before we discuss the management of the process, let us look at the model approach in a little more detail. The more elaborate model is reproduced in Fig. 2.

Figure 2

A MANAGEMENT MODEL FOR INNOVATION IN EDUCATION



Axis A suggests major sub-categories or operants within the operating educational system which might in one fashion or another be altered to improve the efficiency, effectiveness or relevance of current practice. (We say suggest because others might choose different descriptions). An important caveat here is that these sub-categories – instructional systems, teachers (meaning professional roles), management structures (meaning at the individual school or institutional level), finance and administration, and political framework – are, of course, related more or less closely to one another, and should not be seen as discreet entities as this rendering might otherwise imply.

Axis B suggests a way of viewing sub-categories in the paradigm of the change process (again "suggests" because other descriptions might be used). A new step has been added to the model presented at the outset of the conference, namely policy choice of sub-goals derived from the chosen futures and presents. It is this category which

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provided the frame for our discussions and we attempted to address the questions surrounding the basis for decision-making which precedes the decision to begin working on an innovation.

Axis C presents suggested sub-categories identifying:

i) the sources of information or data relevant to management at all stages of the innovative process; and

ii) the kind of manpower required to carry out different functions in the innovative process.

Research scientists represent:

i) the source of knowledge about all those factors which might be important for the practice and improvement of education; and,

ii) the performers of research and development.

Society is seen as a client of the educational system, e.g. manpower needs, and is thus necessarily an important source of input data. We also identified individuals as clients of the system. They may be important participants (as subjects) in research, development and field-tested activities. Both client groups provide major forms of reference to developing alternative futures which will guide policy choices for the innovative process. Finally, the personnel currently administering and operating the educational system are important repositories of information and data about present professional needs, requirements and capabilities. They are also vitally important participants in development, testing and evaluation.

OPERATION OF THE MODEL

Each cube of the model can be examined in terms of the degree to which social, individual, professional or scientific data inputs are relevant to policy formulation, decision-making, or actual performance of one or another step in the innovative process. For example, with regard to policy choices on the content of instructional systems, it would be possible to say that at general levels of sub-goals analysis relative to alternative presents and futures, client groups (individual and social) would show proportionately much higher degrees of appropriate involvement than research scientists or professionals. In the design, construction, and trial of proposed systems to achieve identified objectives, scientists come into a predominant role together with education professionals, but client groups play relatively small parts.

The example offered, however, is illustrative only, not definitive. Before such conceptions become accurate and therefore useful guides, careful thought needs to be directed to:

i) the requirements of analysis in each instance; and

ii) the particular capabilities or offerings resident in the several sources of data input before firm pictures of appropriate involvement emerge. Further examination of the model suggests that the level of participation indicated for research scientists, clients and professionals in each cube depends on a variety of highly situational

variables including the specific proposal or need, the nation or state, that state of the art in knowledge pertaining to the proposal and so on (refer back to the innovation suggestion).

The model appears to be neutral in respect to a number of issues which have continually plagued discussion of innovation in evaluation. It suggests a framework for deliberation, however, and checklists which may enable us to anticipate problems. It is important that we develop the capability to anticipate potential trouble spots, which:

i) might otherwise have led us to reject the effort in the first place; or,

ii) compromise its success unnecessarily.

Part III. *AN AGENCY*

AN INNOVATIVE AGENCY – A CASE STUDY

Norway has had the National Council for Innovation in Education for 15 years. It seems to be necessary for Norway, and for most countries with highly-centralized innovation institutions, to develop their innovation agencies at a local level as well.

The case of Norway shows that it may even be necessary to have a complete innovative system from the central body to each school.

The NCIE believes that Norway must expand the service units in the local system. From these the schools can be given help in their development activities. Even relatively simple educational development work today requires simple teaching aids, compendia, audio-visual aids, etc. In an individual school the teacher is seldom given the service he needs. The projects become too big from him alone. At other times the teacher needs information, inspiration and stimulation ideas in order to be able to even start any development work. The NCIE believes that local educational service centres can give this service.

The educational service centres will act in close co-operation with the NCIE and other central service units to give the teachers the necessary support. The service centres can also serve as communication links between the schools and the NCIE. It is hoped that, through this activity, original ideas will be created that can be further built upon in larger experimental projects.

In 1969, four service centres will be in operation in Norway. If this arrangement is successful, the NCIE will recommend that similar arrangements be carried out throughout the country.

The establishment of service centres is, in one way, a part of the old "dissemination theory". That is, NCIE field experiments can be

disseminated more easily to the country's schools. At the same time, it is a recognition that experimental work locally must be stimulated and offered opportunities for growth.

PROJECT FOR LOCAL SCHOOL SELF-DEVELOPMENT

The NCIE intends to go one step further. A new project, as part of a new experimental strategy, will be begun in the spring of 1969. The purpose of the programme is to offer each individual school the opportunity for self-development beyond the possibilities that are already available.

The programme, which is being worked out in co-operation with the Institute for Organisation Development (Oslo), aims at training teachers and students in the critical evaluation of existing working conditions. It is composed of three parts and has clearly defined objectives. With the aid of intense group work and suitable instruments for the measurement of group reactions, the school will be able to define its "status". The programme will then also aim at helping the teachers and students to define the aims they have for their work. Finally, a development programme for the school for the next few years is to be established. In this last phase it will be necessary to have help from the outside, both from the existing service centres and the NCIE.

The main objective is that the school itself will propose the measures it finds necessary. If the school wants to go beyond what the laws allow, it should also be possible to achieve this in co-operation with the NCIE. The intention is that the plan is to be offered to all schools in the country if experience proves that those schools that have carried out the programme in the primary experiment have arrived at a development plan that is feasible.

In this case you have what may be called an "Interactional model of Innovation". It creates a dialogue between the central body and the innovative teacher and it should comply with the following conditions:

i) The system should be open for information from inside and from outside. The flow of information should be organised in a way so that all participants have the possibility of getting acquainted with new ideas.

ii) There should be a division of power and control between the different levels in the system, but in such a way that the inflow of information reaches all parts of the system.

iii) The distance between the decision maker (on all levels) and the participants (the man who has the experience) should be as short as possible, and as many decisions as possible should be taken by the local participants (Heads, teachers, students, parents, etc.). The decisions which are not important central decisions should clearly be decentralized. At the same time constant information from within and outside the system has to be available.

There seems to be the following division of responsibility between the central and local body:

i) *Central Agency*

A central agency (may be on regional or perhaps national level) has the responsibility for the dissemination of knowledge, ideas, and the co-ordination of people with similar ideas. It provides the possibilities for experiment and research on various problems. It invites schools, teachers, districts to join in a first experiment, which may or may not be designed before the invitation. The central agency is not directing the policy of the local group, but tries to stimulate the thinking in the project design. The central agency operates as a service-body. At the same time it is necessary for the body to set certain limits to a special project. Inside the boundaries of the project, the schools who join can formulate their own programme.

ii) *Local Initiative*

All local initiative needs input of ideas at a certain point of the development. An experiment at the local level also needs careful follow-up if the experiment shall have effect in more general terms. A joint project which is run by the central agency, but where local initiative has a great impact on the content, may have a chance to develop better than a purely centrally directed or a locally inspired project.

SUMMARY

– Innovation in education is looked upon as a planned process, which also gives the creative element a fair chance during the whole process.

– It is important to stress the meaning for all people involved in the process.

– How do we know that the innovation idea is sound from the beginning? (The importance of relevant data from interest groups, etc.).

– The organisation of innovations must be seen in relation to the organisation of the whole school system.

– In static school organisations there might still be entry points for innovation (experimental schools, student rebellion, etc.).

– If the organisation of innovation is made centrally there is probably a need for local innovation centres and a constant dialogue between the two.

– Some characteristics of Innovative Systems:

Communication between planner and actor;
Contact with relevant groups;

Relevant data from R and D units;
Conflicts as an indication for change;
Rewards for the innovators;
Constant re-examination of goals and means;
Flexibility of roles;
Self-renewing systems.

- The process can be clarified by a check list which includes the time line and contextual factors.
- The management of the process is then seen as the management of the interaction between the different factors involved.

Chapter III

THE MANAGEMENT OF THE PROCESS

In this chapter we will deal in greater detail with some of the possible ways of managing the innovation process itself.

Part I. *THE MAIN VARIABLES*

POLICY DECISION

Before the planning of specific innovations begins it is assumed that some policy decision has been made elsewhere, usually by a legislative body. In fact it is probably highly desirable that an official mandate for change precedes any action. The mandate to innovate provides the NCIE in Norway with its powerful role and is behind the structural reforms in Sweden and the U.K.

The aim of all countries should probably be to establish something like the strategy for innovation which exists in Sweden and which is described by Stuart Maclure as:

a) clear political decisions on the goals of the educational system and the objectives to be achieved in each type of school;

b) the refinement of those general goals and objectives into a working curriculum and study plan for each type of school;

c) a programme of in-service training for teachers to assist the introduction of new curricula and teaching methods;

d) a programme of Research and Development to support the policies of reform and innovation;

e) a system of continual revision by which the curriculum and study plan for each type of school is constantly assessed in terms of its own objectives.

PLANNING

However, it is also necessary to lay down clear principles for the kind of planning which should precede and influence the policy decision. There are two possibilities which we would like to describe in detail here. One concerns the nature of planning itself and some of the variables involved (this is an extension of the discussion begun in Chapter II by reference to the model in Fig. 2 and specifically to Axis A). The other concerns a way of co-ordinating planning procedures through an independent planning body.

Firstly, the nature of planning itself. There are three steps in long-term planning; firstly, alternative futures must be specified; secondly, adequate information must be gathered on the functioning of our present society; thirdly, techniques for change must be developed. In order to examine a working model of this process, we might postulate a future in which educational (and other) systems will have two main aims – to maximize individual potentiality, and to make competence along the justification for an individual's position.

In considering techniques for change, five operanda may be considered:

- instructional systems;
- teachers;
- institutional management structure;
- finance and administration;
- political framework.

In each area the source of innovations should be determined, and so should mechanisms for securing the adoption of these innovations. We consider each area in turn, and propose its objectives, bearing in mind the two main aims set out in the preceding paragraph. This is necessarily somewhat sketchy and hasty in its development, but the framework appears to be present for carrying out the work.

A. *Instructional Systems*

1. Design the systems to reflect the shift of emphasis from teaching to learning, and from competition to co-operation.
2. Relate overall goals clearly to general educational, societal and economic requirements.
3. Optimize the use of human and physical resources within and outside the institution itself.
4. Provide the widest feasible choice of learning units and alternative routes through the system.
5. Specify objectives and minimum performance levels for each learning unit.
6. Provide individual choice of routes and back-up guidance system.
7. Aim to achieve success by at least 90% of performers within each learning unit (with time as a variable).

8. Achieve the desired balance between individual and co-operative activity.

B. *Teachers*

1. Ensure that the teacher training institutions exert an innovative influence on in-service and pre-service training.
2. Reflect the desired models of the teaching/learning process (teaching moving to learning; the school moving from closed to open) in the training techniques themselves.
3. Train teachers to implement desired models.
4. Train all teachers to become aware of innovative models and to be open to, evaluate and decide on innovations.
5. Analyse and provide training for different roles, e.g.
   - learning systems analyst
   - learning systems designer
   - evaluator/tester
   - guidance counsellor
   - diagnostician/manager of learning
   - presenter
   - tutor
   - administrator/manager of institution or sub-department
   - various ancillary supporter roles.
6. Analyse and reshape teacher values in relation to (4.) and (5.).

C. *Institutional Management Structure*

1. Evaluate the performance of institutions and sub-departments in terms of productivity (value added between inputs and outputs).
2. Improve information systems and feed-back under (1.).
3. Incorporate the following as participants in decision-making on overall goals and instructional patterns adopted:
   - teachers
   - students
   - parents
   - employers
   - community.
4. Modify physical structures as required by instructional patterns.
5. Apply scheduling techniques to implement desired instructional systems.
6. Optimize the use of buildings, equipment and personnel.

D. *Finance and Administration*

1. Ensure professional staffing competence in management at all levels.
2. Devise rational (and where necessary, differential) resource allocation procedures between different institutions and different age sectors.

3. Allocate adequate R and D funds to design, evaluate and implement innovations in systems, teacher training and management.
4. Design overall management structure to permit two-way communication flows and maximal delegation at every level.
5. Analyse the effectiveness of the overall structure itself, and improve it by feedback.

E. *Political Framework*

1. Establish community advisory and evaluative systems.
2. Improve two-way communication flow between educational system and society at local, regional and national levels.
3. Improve and rationalize the decision-making network.
4. Establish overall planning system to allow national and international co-ordination of effort and resources.

And now we come to the second possibility. The kind of planning which is necessary for innovation will depend very much on the state of development within the country. But the question of perspectives is of universal importance in that it sets planning within a framework of short-term and long-term objectives and clearly relates all the elements whether short-or long-range to each other. Planning is, therefore, seen in a context where the best possible information is available to the planners and they are made aware of all the pressure for change by contact with the relevant interest groups.

In most democracies, no organisation exists for the channelling of specific dissatisfactions with the education system back to the centre. Central planning is helped where a network of local school councils exists particularly where these embrace teachers, parents and students – and a central body, similarly constituted, which can collate information from these and which has direct access back to the legislature – not the administration.

Pressures for change in education are often political or economic in origin and are rarely conceptualized at grass roots level – this requires a group of experts.

Group of Experts

Such a group should be independent of both the legislature and the administration. It must be financially self-supporting and be directly accountable to the legislature. Where it is located is of lesser importance, but preferably separate from government or other educational institutions. It should be small with powers to co-opt. Its members should have diverse backgrounds from the social sciences, psychology, educational research, educational practice and administration. Appointments should be of limited time with a maximum of seven years.

Its final product could be in two forms:

a) An annual review of the deficiencies in the system and the actions needed to be taken to remedy them, with attention to priorities:

this programme should extend forward in time, suggesting a possible basis for legislation over, perhaps, the next five years. It would also suggest in very general terms the alternative plans for action, and their likely consequences.

b) The need for specific changes, normally following the acceptance on the part of the legislature that there was a *prima facie* case for their adoption. This would be an examination at greater depth and a more careful delineation of the alternative plans of action possible, their cost and consequences.

This body should be controlled by an independent council appointed by the legislature. It should probably include radical and creative thinkers from education and from other walks of life, representatives from the consumers – the parents and students – and innovative practitioners from education as well as representatives from the establishment. Appointment to this council should again be for a limited period, to prevent ossification.

The function of this institution, with its council, is to supply information and advice to the legislature which will help to make decisions; it need not, as a body, be concerned with the implementation of action, though individuals from it may join the planning teams which are discussed later.

The Planning Body

This may be constituted in different ways, but it should be a mixed team of committed administrators, routine administrators, researchers, teacher-trainers, innovative practitioners and inspectors. It should from the beginning include both the evaluation specialist and the "project manager" who will be concerned with implementing the final plan. It may be well to attach to it a representative consultant – but not steering – committee which, by having representatives of all sections of the educational system and its consumers will act as a sounding board. The planning team can either be an *ad hoc* body put together for each situation or a regular planning section within the education department. It is probably more advisable in systems with a particularly powerful central civil service to establish the body outside the central educational department.

Methods of Planning

The planning procedure can be seen as two stages. Firstly, the preparation of alternative plans detailed at least so that total costs and the full range of consequences of each plan are reasonably clear. Following an executive decision as to which one – or conceivably over a trial period, more than one – will be accepted, a fully detailed plan for implementation should be made. There is little doubt that both the final acceptance of the change and the effectiveness of the plan would be enhanced if at one or both stages it could be referred to local level for comment; this incidentally also applies to the original advice sub-

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mitted to the legislature. This process has been successfully tried in Yugoslavia, and elsewhere, but it depends to some extent on the existence of a local organisation in a form which can be identified and reached. Consultations should be possible in all countries but will prove ineffective unless well-prepared. This preparation could take the form of documents designed carefully with the target population in mind: there is a case for producing a small instructional package involving print, graphics and audio-visual material in as attractive a form as possible. Mass media can be mobilized, particularly television. Following this, a request in fairly specific form should be made to local organisations to return comments to the central planning board. It is realized that such a process will initially slow up the introduction of change, but it should greatly speed its effective acceptance.

When the total range of changes consequent on the action is identified, the next stage will be to decide on the actions – or the alternative actions – that will be necessary to effect them. In practice, the isolation of the changes and the identification of possible tactics for achieving them is almost impossible without practical experience. It is, therefore, necessary to set up trial schools, or trail experiments within schools. What is suggested here is not an attempt to evaluate new systems against old ones by the process of comparison. Quite apart from the considerable delays involved, this implies the comparison of two systems whose aims are disparate. The object of these trials is to make information available for the decision-makers; for this they will require a true evaluation process, matching as far as possible achievement with stated objectives. It is, however, essential that any such process should be open-ended so that it can pick up outcomes – both positive and negative – that were not foreseen in the original objectives. It is probable that the trial schools can be included in the demonstration schools which will be discussed later.

The final act of planning would be concerned with the actual implementation; this would involve the preparation of a flow chart showing the total process in time, with the actions to be completed by each stage.

CONSTRUCTION/DEVELOPMENT

The construction and development of a project are important elements in the process of innovation and we would like to refer to one specific example here namely the approach of the Schools Council to curriculum development in Britain which was discussed *in extenso* at the Workshop.

Setting up a Project

Schools Council projects are not strictly Governmental, but they are financed from public money. Much effort is generally applied to establish the "feasibility" of a proposed new curriculum before a

project is actually set up. This may take a year, or even two. The new curriculum is critically tested in discussion with teachers, both with a specialist interest and those with a general education perspective; with teachers in the post-school stages of education; with employers; and, in the country at large, with any group of people whose judgement and experience are likely to be informed and relevant.

Ideally, this study is entrusted to the person who, if feasibility is established, will direct development. Indeed, a director may find little value in a feasibility study which he has not himself carried out.

The project director plays a key role, and needs not only to be an expert human being in the sense of being able to relate to and communicate with a very wide range of people, but he also needs many specialist qualities. For instance, that of the good researcher; of the teacher; of the good employer, for he is likely to be responsible for a diverse and inter-disciplinary team; of the good businessman, to negotiate with publishers; and of the journalist and salesman, to promote his project among people who will range from apathetic to openly hostile, in quarters ranging from university faculties to the most rural of teachers' centres.

The Project

A feasibility trial will yield a study in which the purposes, content and methodology of the new curriculum are described, and which can be published immediately for comment in the educational profession. On the basis of the study, the Council makes a grant, usually to a university as grant-holder, signifying the director it has identified to do the work.

The project then begins. It may be seen as a strategic device for organising change, for it provides a focus, and a programme, for those who wish to support the teacher interested in innovation. Its central component will be new teaching materials. But a close second in importance will be specially-designed courses, aimed at explaining the philosophy behind the new teaching materials, and providing opportunities for teachers using them to "play out" or simulate the new role required of the teacher by the new curriculum; the setting for such courses is frequently a supportive group situation, probably in a teachers' centre, providing opportunities for mutual encouragement by the participants.

The next essential ingredient is the organisation support that flows from the commitment of a project school and its local education authority to a national experiment; this induces help for the project teacher in small but crucially important ways such as the release of small sums of money at short notice, or continuity in staffing. The project will also include the development of new examinations, or even a new kind of examination, suited to the new curriculum, and this will need to be matched with assurances from universities or employers that the new

curriculum will not put pupils at a disadvantage in entering higher education.

Finally, the project must include a psychological life-line of support, particularly if things seem to be going wrong in the classroom, stretching from the teacher using the new material, through his local group of colleagues taking part in the experiment, through the project team member assigned a special responsibility for that school, and finally to the director of the project himself.

Pilot schools, for testing the trial material and providing feed-back to the development team, are selected nationally. Little is known about how local authorities actually choose these schools, though we do know that some consult their schools in great detail, and others hardly at all. The Schools Council, when choosing from these offers, is concerned with obtaining a geographical spread, and a cross-section of school situations (rural and urban, large and small, "good" and "bad").

Pilot schools as a group are therefore not biased in favour of the success of the project. Indeed, there are probably too many unknowns, both in the new curriculum and the changing situation of schools, for such a selection ever to be feasible on a large scale. In one or two projects, the directors have visited each of the pilot schools short-listed to check that they were fully aware of what they were committing themselves to. But even with this precaution, the schools did not all turn out favourably disposed, or comprehending, when trials actually began.

The trial of materials has generally been scheduled in British projects to begin about one year after the project has started. This demands a quick start – too quick, some would argue. It also assumes that the project director is prepared to put his ideas on trial quickly, on a fairly large scale (thirty pilot schools being the usual minimum). Not all directors are. Where the new curriculum is highly experimental, the director may wish to have his ideas validated in a very few schools with teachers known to be interested and favourably inclined, before putting it out to pilot schools proper. From this one could perhaps infer a general rule viz. the greater the difference between the subject as currently taught in schools and the new development of it as conceived by the project director, the longer the development project will need to be from start to finish, in all its stages.

Before the trials start, two further crucial steps in the project are taken. First, the understanding, goodwill and active support of the local education authority is sought at a conference between the authority advisors and the project team. Second, conferences will be held of all the pilot school teachers who will be using the materials, and probably of the heads of these schools also, at which the philosophy and implications of the project are fully presented and discussed with the project team. These meetings are the first of many of their kind, as the project progresses; they provide important experience to the project team in how to present their ideas to their "customers" in a way which will promote the maximum understanding and the minimum anxiety.

THE EXPERIMENTAL SETTING

Before any experiment can begin it is essential that all preparatory steps have been completed. This means that all decisions on curriculum, methods, materials and examinations have been made and implemented. Secondly, all the necessary retraining of staff, both professional and administrative, within and outside the schools, has been completed, particular attention having been paid to key personnel.

Successful action will depend on two main factors, which both concern all the participants – staff, parents and the community generally, and students. The first is to ensure that all have a full and accurate understanding both of the plans themselves and the reasons for their introduction; this will be considerably easier if the consultation suggested under the planning section has been carried out. The second is to build up a positive, or at least neutral, attitude to the change. It is inevitable that certain interests will be adversely affected by any change, particularly those in a favoured position under the old dispensation. These groups have had considerable success in mobilizing uninformed public opinion behind them in countries where insufficient attention has been given to this process of general education of public and profession as to the nature and aims of innovation. So important is the public relations aspect of implementation that it is suggested that the planning team should include someone who is an expert in this field.

Most important is the development of demonstration schools. Much of the opposition to change is in fear of the unknown: plans are intangible things. It is essential to be able to show in a practical form the outcome of the change if people are to be persuaded. Such schools can not only be used for actual visiting but also for materials for the making of films and television programmes. The selection of schools for this purpose poses some problems: it is obviously essential that they cover all types of social background and that they are not handpicked schools of proven excellence, yet it is also essential that they should all succeed reasonably well. It is probable that schools should be widely selected from the point of view of background, but should have the staff, and particularly the headmaster, of at least average ability. (See, for example, the Schools Council approach in the previous section).

Specific action should be considered concerning three classes of participants in this part of the innovation process. Firstly, the teachers, who must play a key role in any innovation. It is often forgotten that they genuinely suffer from changes in a system. It is not only the question of the anxieties aroused by changes in role, but also the considerable amount of extra self-education to be undertaken. If full co-operation is to be gained, some "reward" for the teachers should be built into the plan. This could take several forms; it could be in the form of a straight bonus payment during the years of change, it could be in payment for extra in-service training, it could be in improvement of conditions such as the granting of sabbatical terms as by

right. If administrators complain that this will cost money, one can feel that so cost-effective will such a course be that cuts elsewhere in expenditure would be justified.

Secondly, the parents. Action here would take the same form as outlined earlier in conjunction with consultation during general planning. It might be extended by organising visits of key personnel from local organisations to demonstration schools to report back. All parents should be given the opportunity of visiting their local school to see plans in action. They and the community at large should be informed of changes in pamphlets or booklets which describe in layman's terms the aims and contents of the changes planned. This was done for the IMU Mathematics experiment in Sweden and for the actions planned for the 70's in Norway.

Thirdly, the students. These would be easiest reached where student councils exist to whom well-informed discussion leaders could be sent. All the activities suggested might best be channelled into student-teacher-parent councils, which could function prior to change and not simply during it.

EVALUATION

A great deal of importance is attached by everyone to the problem of evaluation as an integral part of innovation and curriculum development.

The following approaches to the problem have been suggested. Firstly, there is what might be called the classical approach to curriculum evaluation in which we must find forms of evaluation that are in accordance with the objectives of the school system. This approach consists of three steps:

i) the defining of objectives in detail and with precision, and in behavioural terms;

ii) the construction of a curriculum or the planning of learning situations which are deemed likely to achieve such objectives;

iii) the assessment (or the measurement or the appraisal) of how far these objectives have been achieved.

This approach to evaluation is well documented in American literature.

There is a second, very different approach, in which it is claimed that the limitations of behavioural objectives are that they tend to oversimplify the experimental situation, that they tend to turn content instrumental and that they tend to undervalue the objectives of the student. Some teachers, particularly those working in the aesthetic field (English literature, Music, Art) find great difficulty in accepting the classical approach using behavioural objectives. It has been suggested that the problem lies in the selection of fertile content or methods which seem likely to achieve general aims, and the determination of the outcomes both positive and negative, thus giving the

information which would be needed to the decision-maker. One way of doing this would be to ask the different participants, such as teachers, psychologists, parents and students, the kind of questions they might have regarding a new curriculum. These questions could be restated as operational definitions or hypotheses, and thus the evaluation procedure could be matched with the interests of the different participating groups.

With regard to the classical approach, a number of difficulties were identified. First and foremost is the difficulty found by teachers and educationalists in adequately defining behavioural objectives in sufficiently precise terms. The process is a long and difficult one leading to impatience and a desire to take short cuts in order to get to the more interesting parts of curriculum development.

A second difficulty is that of producing adequate instruments of measurement and assessment. "Adequate" here means reliable and valid but not using the same criteria or levels of acceptability as for tests of selection and attainment. It is necessary to emphasize the difference between testing curriculum and method on the one hand, and testing individual students on the other. It is necessary to consider the development of a wide range spectrum of assessment instruments ranging from objective tests of attainment at one end to highly subjective assessment and judgement at the other. The adequate evaluation of curriculum will demand the development not only of tests and examinations but also attitude scales, questionnaires, rating scales, controlled observation (preferably by at least two independent judges), and simple direct methods such as the counting of books borrowed from libraries, etc.

A third and very difficult problem facing the evaluator is that of fixing adequate standards of "success" in attaining behavioural objectives. Much more experiment and research is necessary before the many problems associated with this are within sight of solution.

Two distinct aspects of evaluation may be distinguished. The first is the continuous evaluation – and feedback – during the progress of a developing experimental curriculum. This must of necessity be carried out by the developers and the teachers themselves – with expert technical help and guidance where necessary. There are as yet few guidelines in this field, but some are emerging and the close relation with action research here was noted.

The second is the evaluation of a curriculum development project once it has been produced with all its accompanying material. Here the advantages of independent and disinterested evaluation by experts unconnected with the project itself are paramount. The necessity for the technical expertize of psychometricians, statisticians, social psychologists, etc., should be recognized. Although this is thought of as "final" evaluation this itself is misleading since an essential element in the classic approach to evaluation is the feedback and the reform and renewal of the curriculum in the light of the results of evaluation.

The importance of "rolling reform" for example has been emphasized more than once and is further discussed in Chapter IV.

DISSEMINATION

Arrangements for dissemination of the new ideas and practices proposed should be an integral part of the total plan from the outset, for it is here that many innovations break down. Dissemination may be defined as the effective conveyance of a tested innovation as widely as possible within an educational system in such a way that all concerned are encouraged to accept and implement the change. Dissemination includes feedback and must make a contribution to continuing innovation.

Everyone in the educational system has a part to play in the disseminating process. It is easy, for instance, to appreciate the role of the inspector and adviser, of the text-book publisher and television director, of the Director of Education and training college lecturer, of the teacher and head-teacher; but a part must also be played by central civil servants, university lecturers, pupils and examiners. Roles change, of course, and so does the relationship of roles within one agent: some teachers still have difficulty when they meet an inspector, in forgetting the image of a policeman and accepting that of an adviser. So do some inspectors.

The principal – though by no means the only – target is, of course, the class-room teacher, the "man at the coal-face"; ensure that the ideas reach him untwisted and still attractive, and the rest of your task is easy. Another key figure in the process is the headmaster, though the inspector and the local organiser or adviser also have a prominent part to play.

Again, on the issue of openness, if the innovator who takes the first initiative is a headmaster or any other senior person in a school system, he must make effective a means of communicating, developing and clarifying ideas which are relevant to innovation, he must encourage collegial relations in decision-making and he must where possible decentralize administrative activity. But he has also to create an atmosphere in which the search for truth does not appear impossibly idealistic, and none of this can work if teachers who participate in reform are not encouraged to develop a balance between their personal and their institutional goals.

The relaxation of control, too, has much to do with administrative slack. An orientation in a local authority, for instance, towards control of activity, towards economy pay-off or towards formality in interpersonal or inter-institutional relationships is likely to have a negative effect on innovation. A positive effect is more likely to result from the light rein of liberalism. And at risk of seeming to labour this point it is worth remembering that the kaleidoscope of authority patterns within the British school system can delude us at one moment into seeing it

as the most liberal in the world, at others as a cynically erected structure of concealed prescription. The picture which one sees at any particular time can markedly affect the view which is taken of the ease or difficulty of disseminating new thought.

But if a wide variety of patterns of authority and organisation defeats the purpose of models of change-management, the variety of modes and levels of resistance bedevils the attempt to draw pictures which are too simple. Equally confusing are attempts to relate speed of dissemination to the characteristics of particular innovations. To some extent this confusion may be a result of the tendency of teachers not to be concerned with specific effects as much as with the "professing of cultural patterns". The parallel of the educational case would seem not to be the farmer who adopts a new fertilizer because of the specific effect produced with respect to crop yield but the craftsman who says "that's fine if you want increased production, but I'm more interested in a fine-quality product". It is also difficult to conceive of the case in which the extent of agreement concerning which effects are desirable in education is anywhere near that which exists in agriculture, medicine, or other highly rationalized pursuits.

This lack of agreement, which may be one of the logical rather than one of the pragmatic truths of education, accounts for much of the difficulty in reducing innovation to a communicable level of discourse in terms of management and organisation. But there may be deeper reasons for the difficulty. It can, for instance, be claimed that three aspects of education – its vulnerability to the social environment, the professional self-image (with its associated values) of those in education and its diffuseness of goals – mark it off as something so totally different from other professions that the language of management is simply not appropriate.

The instruments available are many, though some are of doubtful value. Written material includes reports from research workers (probably too technical), "popular" pamphlets (not always popular), and the journals of teachers' organisations. Where these are genuinely educational publications, not concerned mainly with status and salaries, they offer a useful channel of communication. Aids specifically designed for the teaching of a new project have a double value, in pedagogical assistance and in practical appeal, and it is notable that most large curriculum enterprises, like the IMU Mathematics in Sweden, the Nuffield Science Project in England, and the New Mathematics Syllabus in Scotland, have written and published a great deal of their own material. For keeping teachers informed and inviting their co-operation the most effective instrument is a well-organised in-service conference, or better still, both.

Not the least valuable property of such conferences and courses is that they offer a flash-point, a place at which opposition and resistance to change can become vocal, and can, presumably, be countered. Such resistance is inevitable, whatever the quality of the innovation: only those which leave untouched the traditional values

will be regarded with favour, and scarcely any change of any importance can fail to challenge a fundamental value treasured by someone in authority. Nowadays, the most fundamental objective of educational innovation seems to be to ruin the traditional educational structures and functions.

Individuals and groups, as the behavioural sciences have shown, are inclined to resist all changes in their status coming from outside, and teachers strongly exemplify this tendency. They are working in a field specially concerned with values deeply influencing life and living, a field, moreover, where it is difficult to "prove" that one way is better than another; they are also, with their own high intellectual standard, more inclined than most to be critical of new ideas. Their resistance, where it exists has several strong roots. Psychologically, they are seeking to reject changes which threaten their security; in a job whose approved methods encourage questioning by pupils, such security is never in any case very sturdy. Practically, they seek "proof" where, as we have seen, absolute proof is impossible to provide. Idealogically, they find certain assumptions underlying new programmes, consciously or sub-consciously unacceptable. Professionally, they regard "outside" innovations as encroaching on their class-room domain, that tiny area which is all they can claim for kingdom; especially they resent the fact that "amateurs" still make the educational decisions without consulting the experts, and even when they meet fellow-experts, they are deeply suspicious of what they see as advisory euphoria amongst those who are too long away from regular teaching.

Now the dream of the disseminator must be to encounter a positive or at worst a neutral attitude to change; this he will rarely find unless he takes active steps to foster it. An important factor in the equation is the need for teachers to feel that they have taken an active part in the new process. Where they have not, they see themselves as victims of a package deal, presented with one ready-made unit instead of another; they may reject the new tool because they were not involved in shaping it, or, worse, regard it merely as evidence that they are out of date, and become disheartened. One difficulty is that, in some western countries at least, teachers have not themselves been great innovators. The driving force in the main changes of the last decade has come from outside the classroom, and it is correspondingly more difficult to foster feelings of worth-while contribution in teachers. Nevertheless it must be – and, to a large extent is being – done, by the establishment of teachers' centres, which are more than mere information banks, by involving teachers in research and development (a part for which they need careful training) and by using their expertise and shrewdness on national and local committees, especially those concerned with the management of innovations. The consequence is the well-known "Hawthorne effect", which simply means that people who feel they are important and contributing, will be involved and productive.

Some final words of caution. Firstly, resistance is not necessarily illegitimate; an innovation, when evaluated in the long term, may show no appreciable "improvement", may even fall short of being a reasonable alternative for teachers to consider. Resistance in short, is not an evil in itself, no matter how evangelical the innovator happens to feel. Secondly, uncritical acceptance of change is a danger, and can lead to the phenomenon described as "over-diffusion". Even where finance is not concerned, change and experiment may confer respectability; the recent history of foreign language teaching in some English and Scottish primary schools, with many unprepared, unskilled teachers introducing old-fashioned French lessons because people who knew seemed to think some such experiment vocationally desirable, illustrates the perils of a band-wagon. Finally, dissemination cannot be secured exclusively by institutionalized forces. In some cases, indeed, these can do as much harm as good, in a world where mention of "authority" is enough to excite an antipathetic attitude.

Part II. *THE MAIN CONTEXT FACTORS*

Many of the context factors referred to on p. 21 have been discussed throughout this chapter within the various sections on the main variables. Two, however, training and finance, we feel should be treated in a little more detail, as they seem to exert an importance which is potentially greater than the other factors.

TRAINING

In most western countries innovators would be found:

a) at the national level
- politicians
- industry men/central departments;

b) within the system
- consultants, advisers, inspectors;
- local/regional administrators;
- research and development specialists;
- heads and principals of colleges and schools;
- lecturers in teacher education and at universities;
- leaders of local teachers' groups.

Which of these groups are susceptible to training? At the national level it would be better to expose those concerned not to explicit training courses but to conferences, workshops and seminars at national and international level, where their sensitivity to the problems of change would be heightened and they would receive a steady flow of accurate and up to date information.

Similar provision should exist at the regional and local level for administrators. For consultants, advisers and inspectors who have a key role to play in the innovation process by supporting innovations

and innovative teachers, by providing feed-back to regional and central departments and to parent-groups where they exist, their "training" would be both of the arousal of sensitivity kind and directed towards the acquisition of new techniques to deal with all the problems of innovation.

Who should be trained and how?

Teachers, headmasters, project leaders, lecturers, researchers, require some measure of special training, with greater stress, in terms of training, being put on those who were closer to the practitioner in the classroom.

The managers of innovation and especially the project leaders – a small number in any country at a given time – would perhaps best benefit from *ad hoc* courses, familiarizing them with the problems and opportunities which had arisen in the management and design of comparable earlier projects. This type of experience could well be organised on an international scale bringing together those involved in similar experimental work in a number of countries. (This is the kind of activity that would be within the scope of a CERI project).

Others who would be involved in planned innovation (researchers, those concerned directly with the design and creation side of new projects, and their assistants) would profit from comparable *ad hoc* training. But at the trial stage of curricular projects those diversely involved with schools (heads, principals and assistant teachers) in the trial would certainly, it was thought, profit from some more uniform pattern of training – a pattern similar perhaps to that needed by the trainers and lecturers who would, at the dissemination stage of a curriculum project, be involved in in-service training and, hopefully, in the modification of initial teacher training courses.

Content of training

It will be seen that two distinct types of "training" may be distinguished:

a) a problem oriented, shorter term "training to innovate" (i.e. to put a specific new idea into operation);

b) a longer term training to promote innovative attitudes.

It is not always easy to keep these two approaches apart in a training course – perhaps there should be no attempt to do so. What is more important is that those who are being trained to innovate should have been given the proper tools to do the job. For the teacher, intensive studies in his own subject field, supplemented by practical work with teachers' groups and followed by familiarization with current work in social psychology and organisation theory. The head or principal might concentrate on the problems of organisational innovation and the administrator on cost benefit, PPBS and resource allocation.

Where and when should such courses be held? For teachers obviously in pre-service training. For those already in service and for all other categories of innovators one-term courses within each country's ordinary structure of in-service training should suffice. Depending on the type of innovation, courses could be held at a local, national or international level, within schools or teachers' centres (where they exist). The snowball effect of such courses is obvious. Once a course has been successfully tried out it can easily be reproduced elsewhere, when it is available in a convenient package.

With the present day commitment to, or at least concern for, educational innovation, few countries should find difficulty in structuring such courses or finding the mechanisms to bring them into being.

FINANCE

The financing of innovation has been mentioned on a number of occasions in the report, usually in relation to the context factors in the innovation process. It is, we believe, a fundamental problem in its own right and something that should be considered separately from the discussion about specific innovation.

We wish to eschew here any discussion about why education is regarded as one of the priorities in the ever-increasing share it takes of the national budget. Let us assume that so-and-so much money is available and shall be allocated to improve the quality of the education offered. Allocated by whom? At the national level, presumably by government officials. And to whom? To those bodies, groups and institutions which the officials believe can best achieve the broad aims stated in government policy? What criteria do the officials use to allocate the resources? Firstly, those bodies which the Government either controls, or has helped create, such as national boards or councils for the improvement of education, and in which it has confidence, receive a large share. This is understandable, for the central authority believes that these kinds of institutions with which it has close contact can best understand its policies and formulate their plans accordingly. These bodies however have very diverse powers and depend much on their ability to advise and persuade skilfully and have often no mandate to experiment (the NCIE in Norway is an exception to this, as is to a lesser extent the Schools Council in Great Britain).

The real difficulties in the allocation of finances begin at what might be called the level of institutions. They have received their finances in order to fulfil their overall objectives, again broadly stated and presumably conforming to those other global objectives at the national level. What criteria then do these institutions use in the allocation of their finances? Obviously again they support individuals, groups, etc., which can best fulfil their aims. But when they support Project A in preference to Project B, is it because Project A looks better, because it is led by a better person and not because it is

necessarily a better project? Supporting bright individuals often works, but is there not an approach which is founded on a more scientific basis and which can be seen to fit more logically into a whole series of decisions about the kinds of means necessary to achieve specific ends.

The movement towards the creation of bodies to be used as mechanisms for innovative activity within the educational system and which have close liaison with government departments without close control is probably one way of ensuring a more reliable allocation of resources from the first to the second level.

There is no clear answer to the more difficult problem of how the second level allocates its resources. There is however much that can be done. Those who allocate the money must have at their disposal all the necessary information to help them reach the right decisions about the projects they are going to fund. What kind of man is going to lead it? How will the project be designed. Is evaluation built in at the beginning or something that might happen at the end? Have similar projects been carried out elsewhere (here some kind of data bank is necessary for quick information). How does one project relate to the other projects financed by the institute? Does it influence them and vice-versa. The managers of innovation must have at their disposal the necessary criteria by which they can judge which innovations should be financed and the best possible ways to finance each innovation. Without a clear understanding of the process of innovation and the policy of the country regarding educational change and development great harm can be done by financing and supporting piecemeal innovations of limited benefit which if they fail have a catastrophic back-wash effect making a country innovation shy for many years to come.

The Role of Private Foundations

In many western societies finance for educational improvement is made available by numerous private foundations. These foundations are free from any kind of government control and can allocate money where they think it is best invested. They have a great responsability and a very influential role to play, but they are also open to all the dangers of the official financing organs in the country without some of the latter's advantages. Their freedom from involvement in official, semi-official or other institutions closely in touch with government policy gives them it would seem at first glance an opportunity to distribute their funds equitably. But this apparent equality belies a danger that their choices might be in conflict with others made elsewhere by governmental and non-governmental bodies. This encourages a piecemeal approach to educational development and increases the tendency towards the uneconomic allocation of limited finance.

There is no easy answer to this problem. The role that such private institutions can play is a vital one. But it can only be an effec-

tive one if the decisions they take are based again on the soundest possible information and in relation to a common policy concerning the qualitative planning of education which they themselves have helped formulate in dialogue with all other innovative bodies both governmental and non-governmental and further in relation to a clear step by step approach which they have established for their own policy for financing educational innovations.

Part of the work of CERI will be devoted to attempts to find solutions to the problem of the finance of innovation.

Chapter IV

INNOVATION IN PRACTICE

Innovations clearly vary in their extent, in their importance, in their implications, in the educational fields with which they are principally concerned, and attempts are made from time to time to allocate them to categories. One such attempt draws a distinction between innovations directed towards changing education's aims and those directed towards changing its means and methods. It is one thing, for instance, to initiate an innovative process whose objective is to create schools that focus on capacities instead of knowledge, techniques and skills; quite another to accept the aims and values of the system and concentrate only on improving the school's efficiency in working towards these aims and values.

The point seems well taken, if obvious, though it has a built-in implication that innovations which change ends are immeasurably more valuable than those which "only" affect means. When we proceed, however, to look for examples within each category, the distinction appears more and more artificial. The "new" mathematics – IMU in Sweden, Nuffield in the United Kingdom – must obviously fall into the first group, since it involves a change of aims. Pupils are no longer being introduced by experienced guides to an established, logical body of material, whose content they must master, step by prescribed step; they are being encouraged to discover mathematics for themselves; not instruction but self-instruction. The same is true of the new syllabuses in physics, chemistry and biology. Yet these innovations, intended to change aims, do so by changing methods of learning. The increasing use of the "language laboratory", at first sight clearly a means-directed innovation, is justified by its champions as concentrating more on learning a language as an instrument of human communication (with inevitable emphasis on oral and aural skills) and less on acquiring knowledge of its literature (with the stress placed on written and printed texts). Implied here, therefore, is a change in educational aims as well as techniques.

There are, of course, a few innovations whose connection with aims is minimal: the use of computers in timetabling and the marking of examinations is a good example. In general, however, few changes

fall comfortably into one of the two categories proposed, and it is doubtful whether the distinction is a very useful or even a particularly convenient one. It may be more helpful to list them according to the broad educational areas in which they mainly operate – organisational, technological and curricular innovation – though this arrangement also, like every other, leads to overlap.

Organisational innovation occurs in the structure of school and college systems and in the running of the schools and colleges themselves. The best current example is the introduction of comprehensive education in many western countries.

Technological innovation is concerned with changes in educational methods, generally associated with "hardware". Instructional television is a notable example. (Such innovations, however, are not necessarily confined to processes involving the use of a machine: programmed instruction which began by incorporating a "teaching machine" now stands on its own feet as an educational method).

Curricular innovations concern themselves with the content of courses, the structure of subjects, the purposes and methods of a discipline. The Individualized Mathematics Instruction System (IMU) in Sweden and the Humanities Curriculum Project in Britain are of this type.

Probably more changes are initiated each year in the curriculum than in either of the other categories, but it is important to note that all innovations affect the organisational structure of the school. Changes in curriculum and the introduction of new technology always require accompanying organisational change, but the fact is sometimes not recognized. When it is not, innovations in schools which have not been restructured to accommodate them are resisted, eroded and finally abandoned.

Six examples will perhaps illustrate the kind of work going on at present in various western countries. There is space for only a few sentences on each, but much further information can be obtained by reference to the background papers. In the meantime an attempt is made to set out the area in which innovation is taking place, its general aims, and some interesting features noted by educationalists involved.

ORGANISATIONAL INNOVATION

A most ambitious organisational innovation is the introduction in Norway of 9-year comprehensive education. There, the Elementary Schools Act of 1959 has established, for the first time, a common educational law for both urban and rural districts. There are now nine years of compulsory education for all, with an optional tenth. An extensive reform of the previous system has been organised and directed by the National Council for Innovation in Education (itself only 15 years old). Its aim is democratization, the desire to attain a socially equitable

educational system in which each individual student is given the optimum opportunity for growth.

In the course of directing the innovation, the NCIE has encountered a number of difficult problems, for example:

a) Social pressures resistant to change – teachers who find difficulty in adapting to the necessary new role; parents attached to the old competitive "get-him-the-best-job" system and naturally suspicious of "experimentation" with their children; students who use the same arguments as their parents;

b) The need to motivate teachers now serving to undertake experimental work. Interesting experiments have been carried out in reducing other duties, offering extra reimbursement and providing "teachers' service centres", but the most effective single step is to make the teacher feel that the innovation will help him personally;

c) The importance of ensuring that all new teachers have the right attitude to innovation, and therefore the need to experiment in teacher training. The situation here is complicated by the Norwegian system, which trains teachers at two levels;

d) The inevitable difficulty that students do not fall naturally into homogeneous groups, and the problems this raises for curricula and timetables;

e) The democratic desirability of students playing some part in the making of decisions. There are interesting experiments in Norway in this field;

f) Changing concepts of the role of the school in a democratic society.

A similar organisational innovation may be studied in Holland at the local level; this is the introduction of far-reaching changes in public secondary education in Rotterdam. The Dutch Secondary Education Act of 1963 (whose provisions came into effect on 1st August 1968) has made radical alterations in the type of schooling available, leaving local authorities a certain amount of freedom in the systems they choose. The aim, as in all "comprehensive" measures, is to make the most suitable education available to every pupil. Rotterdam seeks to secure this objective notably in three ways:

a) By establishing a new type of school, the "h.a.v.o." (literally "general higher education") for all pupils not moving towards the university. (The "gymnasium" and "atheneum" (h.b.s.), however, remain in existence);

b) By forming seven integrated groups of schools (*Scholengemeenschap*), consisting of many school-types, including, if desired, an elementary. The social and democratic value of such a grouping is clear, but there is a more specific advantage, namely,

c) A common first year. The Act has laid down that there shall be a common structure in the first secondary year in all types of schools, so that mistakes of placing can be rectified as early as possible (the *Brugjaer* or Bridge-year). Schools in a *Scholen-*

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gemeenschap may physically form a common first year, whose pupils are not assigned to any type of school until they have completed this year.

The innovation has been in operation for only one session; it is too early for any but the most tentative deductions. However, two specific comments should be made:

a) Pilot experiments must be carefully planned. Those undertaken between 1963 and 1968 had no significance whatsoever and have given no relevant data for the coming novel situation. They were carelessly planned without clear-cut aims, the teachers were badly coached and there was an utter lack of practical reports.

b) Consultation is necessary on the widest possible basis. Meetings and conferences for teachers and headmasters; local meetings of parents; circular letters and a special "newspaper" of one issue; central and school committees which allowed sixty per cent of teachers to take part in discussion of plans – all these were effective in reducing opposition and removing distrust.

TECHNOLOGICAL INNOVATION

Technological innovation is most advanced in the United States, but there is much criticism of what has been done in this field.

Experience with ETV, for example, suggests that:

a) Teachers using it must have a say in the selection and creation of programmes if they are expected to co-operate fully;

b) "Follow-up" is of prime importance, and by no means enough work has yet been done on this topic;

c) Television is expensive and educational returns are not necessarily commensurate with the amount of money spent.

CURRICULAR INNOVATION

An example of curricular innovation is the Swedish Individual Mathematics Instruction System (IMU). At first sight this appears to be a fairly specific enterprise: its aim is stated no more highly than to develop a comprehensive teaching system for the subject and stage (the upper department of the comprehensive school).

In fact, however, its stress on self-instruction by the students and on the comprehensive nature of the school shows it as part of a much wider general innovation, involving organisation as well as curriculum and methods. The effect of this has been to direct the attention of the innovators – the National Board of Education – to the new role of the teacher as supervisor and stimulator rather than dictator, and interesting experiments have been conducted in team teaching and the employment of assistants (teaching aides). The Board claims that the method, fully implemented, will reduce the number of teachers required in this area. There are also implications for buildings and premises,

timetables and equipment. The directors, for example, have found it necessary, as have similar mathematics projects in other countries, to provide a substantial volume of material, mainly booklets and tapes, directly designed for students and teachers studying the IMU programme.

A British innovation which has attracted much attention in the curriculum field is the Nuffield Schools Council Humanities Project, the aim of which is to foster active participation by pupils in their own education and in the world in which they live. Its work entails radical departure from traditional teaching methods and the development of a new school subject, "humanities", i.e. all parts of the school curriculum which refer particularly to human relationships. Work on the project so far has highlighted several matters of general importance to innovators:

a) The key position occupied by the Director, whose influence is crucial at the very earliest stages when the theoretical framework of a project is being formulated;

b) The need, felt also by innovators in mathematics and physics, to select, assemble and provide suitable material;

c) The importance of excellent personal relations with teachers, head teachers and employing authorities. The Director, in a general paper written for the Workshop, gives detailed proposals for such liaison;

d) The need for careful planning of the experimental phase – the optimum number of experimental schools (the Director stipulates not more than 30); the length of the experimental period (he plumps for two years); the rules for evaluation (he states categorically that no evaluation should be attempted in experimental schools);

e) The best pattern for the process of dissemination or diffusion, which should probably be in two stages. The second is that of general introduction; it should be preceded by one in which the project is extended to anything from 100 to 300 schools;

f) The difficulties attendant on establishing a new school subject. To have any hope of success, in the Director's view, it must be institutionalized.

The innovation widest in its application today is probably the Swedish concept of "rolling reform", which refers to all categories of educational change. It means simply building into any educational system a continual process of evaluation and review.

The aim is to make innovation a permanent state in which curriculum and organisation are under constant review in the quest for better responses to changing circumstances, new knowledge, more effective learning and better use of resources. Innovation becomes a state of mind and an administrative attitude, not something more or less traumatic which requires a Royal Commission to carry it through.

A number of important points have emerged:

a) Since the system must be constantly checked against its agreed objectives, there must be available at any time a clear statement of these objectives, and it is extremely difficult to formulate them without sounding aggressive, authoritarian or naïve. The current Swedish list appears in the Introduction to their *Läroplan,* as a manual of guidance for teachers;

b) There must be continuing contact with various "reference groups" in society – industry, trade organisations, subject associations and the like;

c) Training and re-training of teachers are of critical importance, not only for the introduction of required changes, but to build up the teacher's professional self-confidence and commitment. Countries with a divided profession – elementary versus secondary, specialist versus teacher of general subjects – have particular problems;

d) It is one thing to rule that there must be continual appraisal and revision, something quite different to estimate the period necessary to allow a change time to establish itself. If something seems to be going badly wrong, for instance, must the innovators wait for the first batch of students at least to complete their course?

e) A problem inevitable in a system as highly centralized as the Swedish one is the relationship of the directing body – in this case the Board of Education – with other interested groups.

These are only a few examples of innovationary projects currently being undertaken. It is probably true to say, however, and certainly a welcome phenomenon, that there is more readiness to try change, a finer spirit of adventure, even in the most traditionally minded western countries, than at any time in their educational history. It is because of this that there is a problem of management at all in innovation.

Chapter V

FURTHER PLANS

Every country now dealing with innovation, and desiring the rapid progress of planned changes in the educational system, will encounter problems in managing the innovation process. The difficulties will probably be to establish policies for the work, and to find the best strategies and mechanisms to deal with the problems.

In any new field, in particular one which cannot easily be placed in a traditional context, there will be a need for training. Very few universities have courses for managers of innovation, for project leaders, or for people specializing in dissemination or evaluation.

It seems that an international agency might have a role to play in this area. It would firstly gather information from countries who are already involved in the process. Secondly, it has the possibility to disseminate knowledge in an efficient way. Thirdly, it could develop an expertise which would be offered to countries wishing to establish more systematic work in this field.

The training aspect is probably in this phase of development to a large degree a task for an international body – at least on the management level and on highly specialized levels. The reason for this is that only few countries have experts in the field, and that only few persons will in the next years need training at the top level.

PLANS IN CERI

CERI's interest in this field is a natural consequence of its action on different innovation projects. The need for a more systematic and logical approach to the management problems will arise in all countries who adapt one or more of the projects in the CERI-Programme.

The Workshop in Cambridge has demonstrated the need for contact between people in the field. CERI wants to establish a network of people in the Member countries who are dealing with the management of innovation, or who are influencing the development of the educational system.

The network should be strengthened by dissemination by personal contacts and by dissemination of written material. More thorough studies of innovation policies and structures in selected Member countries, and studies of specific innovation projects would be commissioned.

The Workshop will be followed up by a new one in 1970. The studies mentioned above will probably be the most important background material for the work. It is the intention of CERI to stimulate Member countries to arrange national seminars on innovation problems. This will be a natural strategy for the dissemination of the knowledge and insight gained in the Cambridge Workshop. CERI will be glad to advise on the planning of national workshops, which of course should be the responsibility of and at the cost of each Member country.

CERI – EXPERTISE ON POLICY, STRATEGY AND MECHANISMS

There already seems to be a need for advice, consultant work, and planning in relation to innovation policy and strategies in the Member countries. Through the network mentioned above, there is a great potential of expertise and insight into these problems.

CERI would be in a position to offer competent individuals or groups an opportunity to analyse the situation in Member countries. This offer could possibly be extended to countries who need assistance in establishing a well-planned policy on innovation.

INTERNATIONAL TRAINING

A basis for national policy and strategy is personnel able to carry out an innovation programme. CERI could play a co-ordinating and contact role in establishing international training courses. For the coming years it will be difficult for individual countries to set up their own courses because of the lack of personnel, lack of national innovation programmes, and the insufficient number of people involved.

CERI is planning an international course for top managers of innovation. The participants would be those influential in the innovation field, at central or local level. The course will take place during one year, participants staying in their jobs but with 2-3 week study periods abroad about four times during the year. The course would be organised in small groups.

The main goal of the course is to inform and train people in the most central aspects of the innovation process. Countries like the United States, the United Kingdom, Scandinavia, Netherlands, etc., would be visited and the people involved would get acquainted with projects, people, and more theoretical viewpoints.

The course should:

1. Give the participants a general frame of reference in the field of innovation today. Both the lectures and the projects they look into should be front-edge developments;

2. Give the participants insight into different policies and strategies so that their own management role can be more clearly defined. Their own national situation should be carefully analysed during the year in the light of other strategies;
3. Give more detailed insight into different methods in planning, experiments, evaluation, and dissemination as well as the context factors. The key word would be managing methods.

The participants would get work to be done at home, and their energy should be spent on the application of their new insights to their own national situation. The participants should probably get a CERI-certificate after the one-year training course.

CERI could also help in establishing training for other groups in innovation. There is probably a need for training both among project leaders (on specific projects) and evaluation personnel. This could be done in seminar and workshop settings on different projects.

The role of CERI should be to take initiative, to co-ordinate and evaluate the results of its own efforts. The real work cannot be done in CERI. The innovation process must be run in the Member countries. It is of great importance to realize that every country has to build up its own expertise in this field. What we have learned from the Cambridge Workshop is that we can help each other in many different ways. CERI will be glad to be one of the catalysts in this process.

APPENDICES

Appendix I

WORKSHOP ON THE MANAGEMENT OF INNOVATION

St. John's College, Cambridge
21st June – 5th July 1969

LIST OF WORKING PAPERS

CERI/EI/69.03	*Curriculum Innovation through a Curriculum Research Project*	Lawrence Stenhouse United Kingdom
CERI/EI/69.04	*The Curriculum Development Project in Britain*	John Banks United Kingdom
CERI/EI/69.05	*School-Centred Patterns of Support and Resistance*	Joslyn Owen United Kingdom
CERI/EI/69.06	*The Contribution of a Central Inspectorate to Innovation in Education*	M. Birchenough United Kingdom
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CERI/EI/69.11	*Note for the Participants*	
CERI/EI/69.12	*The Management of Innovation in Scotland*	James Scotland United Kingdom
CERI/EI/69.13	*Education Research and Educational Planning in Sweden*	Eskil Bjorklund Sweden
CERI/EI/69.14	*Swedish Educational Administration*	Stuart Maclure United Kingdom
CERI/EI/69.15	*Educational Innovation in the United States*	Leila Sussman United States

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CERI/EI/69.16	*New System of Curriculum Development*	Lennart Cervall Sweden
CERI/EI/69.17	*Dissemination and Translation Roles*	Ronald G. Havelock United States
CERI/EI/69.18	*Sociological Factors in Educational Innovation*	M.A. Matthijssen Netherlands
CERI/EI/69.19	*Innovation in Education*	W. Westley Canada
CERI/EI/69.20	*Educational Changes in a Local Community*	E. Pelosi Netherlands

Appendix II

WORKSHOP ON THE MANAGEMENT OF INNOVATION

St. John's College, Cambridge
29th June – 5th July 1969

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